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COPY

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July 13, 2015

Grafton Planning Board
30 Providence Road
Grafton, Massachusetts 01519

RECEIVED

JUL 14 2015

RE: **Definitive Plan Conventional Development
"Gristmill Village"**

**PLANNING BOARD
GRAFTON, MA**

Dear Members of the Board:

This letter is in response to comments received by this office on May 5, 2015 from the Town's consultant, Graves Engineering Inc. regarding the above referenced project. We have reviewed these comments and provide the following responses. For clarity we have inserted Graves comments followed by our responses in bold.

Our responses are as follows:

Subdivision Rules & Regulations

1. The applicant has requested a waiver to allow a dead end street and its extensions to exceed 500 feet in length. A waiver was previously requested from this requirement. The request was denied in a Planning Board decision filed on May 21, 2014. It is our understanding that the Planning Board will address waiver requests. (§4.1.6.3)

No response necessary

2. Sheets 2 and 3 of 17 were not stamped by a Registered Professional Engineer or Land Surveyor. (§3.3.2.2)

The plans have now been stamped by a Professional Land Surveyor.

3. The plans propose 22-foot wide roads, which are the width required for a "Minor Street-C". Based upon ITE trip generation rates for single-family dwellings, the development would be expected to generate less than 250 vehicle trips per day. However, based on our experience at a project elsewhere in Grafton a 22-foot wide through road can be difficult to maneuver around a parked vehicle or opposing vehicle if snow is present along the road. The Board may wish to consider requiring a "Minor Street-B" width of 26 feet for better maneuverability. In a Planning Board decision filed May 21, 2014, it is noted that the Fire Department stated their preference for a 24 foot or 28 foot wide street to

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accommodate emergency vehicles. (§4.1.4.2)

No response necessary.

4. The applicant has requested a waiver to allow less than seven feet six inches (7' 6") of cover over sewer pipes. The minimum proposed cover over a sewer pipe is five feet two inches (5' 2"). This shallower depth will occur in the vicinity of SMH 2 in Pleasant Street at the intersection of Millstone Drive. The depth of cover was affected by the elevation of the terminal end of the existing sewer main and the existing topography along Pleasant Street and as such, we have no issue with the waiver request. It is our understanding that the Planning Board will address waiver requests. (§5.3.2)

No response necessary.

5. The applicant has requested a waiver to allow less than four feet of cover over drain pipes. The minimum proposed cover over a drain pipe is two feet two inches (2' 2") at Millstone Drive station 0+00 ±. Class V RCP should be used if four feet of cover cannot be provided. It is our understanding that the Planning Board will address waiver requests. (§5.4.2.2)

The plans have been revised to indicate Class V RCP pipe where four feet (4') of cover cannot be provided.

6. Cape Cod Berm is proposed on Greystone Drive, which has a centerline grade of 2.5%. Vertical Granite Curb must be placed along any roadway that exceeds 2%. In our opinion, as an alternative, consideration could be given to placing vertical granite curb at the radii and cul-de-sacs, and sloped granite edging along both Greystone Drive and Millstone Drive. (§4.2.1.2.b).

The plans have been revised to show cape cod berm at all locations except at the intersection of Pleasant Street and Millstone Drive, where vertical granite curb is proposed. A Waiver request has been submitted to the Planning Board in connection with this modification. A copy of the waiver request is attached.

7. The two catch basin construction details on Sheet 16 of 17 need to be revised to include granite curb inlets. (§4.7.8.3)

The details have been revised.

8. Concrete sidewalks must be provided across driveways. (§4.9.1)

The sidewalks have been extended across driveways.

9. The "Typical Trench Section" construction detail on Sheet 16 of 17 must specify that to a point two feet over the pipe, no stones larger than three inches in greatest dimension shall be used. (§5.3.1.3.e)

The detail has been revised.

10. The "Precast Concrete Drain Manhole" construction detail on Sheet 16 of 17 must specify steel reinforced copolymer polypropylene plastic steps. (§5.4.1.5)

The detail has been revised.

11. The "Precast Concrete Drain Manhole" construction detail on Sheet 16 of 17 needs to include an invert channel. (0.4.1.6)

The detail has been revised.

12. Sheet 8 proposes a single tree species, Pin Oak, for the subdivision. We defer to the Planning Board if a single species is acceptable or if two or more species are required. (§5.10.1)

No response necessary. Note that the street tree species has been changed to Cleveland Pear on the plans.

Zoning By-Law

13. GEI has no issues relative to compliance with Grafton Zoning By-Laws.

No response necessary.

Grafton's Regulations Governing Stormwater Management

14. The hydrology computations submitted were not based upon "Cornell Data" precipitation amounts. The website <http://precip.eas.cornell.edu> can be used to obtain rainfall data for the Grafton area. The rainfall data must be for a 24-hour storm event. (§6.B.3.b)

The calculations have been revised based on the Cornell Mean Precipitation Frequency Estimate for a 24-hour storm event.

15. The Stormwater Management Plan must include a cost estimate for operation and maintenance. (§7.A)

A cost estimate has now been provided as part of the Operation and Maintenance Plan.

16. The plan shows existing and proposed topography at two-foot contour intervals. One-foot contour intervals are required. Considering the topography at this site, we have no issue with the use of two-foot contour intervals. We defer to the Conservation Commission if two-foot contour intervals are acceptable. (§7.B.1.h)

No response necessary.

17. A limit of work line must be shown on the plans. (§7.B.2.b)

The limit of work line is now shown on the Grading and Drainage Plan and Erosion & Sedimentation Control Plan.

18. On site locations to be used for storage materials, wastes, vehicles, equipment and soil must be included on the plans. (§7.B.21)

These locations are now shown on the Erosion & Sedimentation Control Plan.

19. Description of structural practices to divert flows from exposed soils must be included on the plans. (§7.B.2.1)

A description of these practices has been added to Erosion Control Measures Note #3 on the Erosion & Sedimentation Control Plan.

Hydrology & MADEP Stormwater Management

20. GEI reviewed the hydrology computations and found them to be in order except as noted below.

No response necessary.

21. The pre- and post-development hydrology computations were prepared based upon a single analysis point for the entire subdivision. However, in our opinion there are three distinct stormwater points where pre- and post-development data need to be analyzed independently: west toward Barbara Jean Street, south toward Grist Mill Road and southeast toward Pleasant Street. Although the computations submitted show that peak runoff rates would be attenuated for the site as a whole, the three analysis points need to be analyzed independently.

The computations have been revised utilizing the three separate analysis points. Based on the revised computations, runoff up-gradient of the site has been redirected into the detention basin to ensure attenuation of peak rates of runoff toward Grist Mill Road during the smaller storm events. As a result of this change, the culvert located on Lot 3 to divert runoff around the basin has been removed from the revised plans.

22. The 24" grate of the outlet control structure is proposed on the plans as a horizontal grate at elevation 332. The hydrology computations model the outlet as a vertical grate at elevation 331.50. The hydrology computations need to be revised to be consistent with the plans.

The structure has been revised in the computations.

23. Soil testing has not yet been performed at the Subsurface Recharge System, which is located on an easement on an abutting lot. Based upon data collected elsewhere at the site, the design of the Subsurface Recharge System does not appear to be unreasonable. Nevertheless, confirmatory soil testing will be necessary prior to the start of recharge system construction.

This requirement is acceptable.

24. Calculations for the sizing of rip rap aprons were not provided

The sizing for the apron has been provided in the Stormwater Management Calculations

General Engineering

25. A distribution system needs to be designed for the Subsurface Recharge System. The pipe from the water quality inlet abruptly terminates at the edge of the recharge system.

A distribution system with perforated HDPE pipes has been designed for the recharge system. The cross-section detail for the recharge system has been revised to show the pipes.

26. A drain manhole should not have any turns with angles greater than 90°. DMH 8 (see Sheet 14) in Gristmill Road needs to be revised.

An additional manhole has been added to reduce the angle of the bend to 90°.

27. Access to the stormwater basin needs to be revised. Access from the drainage easement on Lots 3 and 4 is blocked by a split rail fence. No gate is proposed.

A gate is now proposed to allow access to the basin from the easement.

28. The proposed water main and sewer line in Pleasant Street are in conflict at station 4+43, which is the intersection with Millstone Drive. See Sheet 12 of 17. The utilities must be revised so that they are not in conflict.

The Pleasant Street profile has been revised to provide eighteen inches (18") of separation between the water and sewer. A waiver request has been submitted to the Board to allow a minimum of three feet (3') of cover over the water line at the location of the crossing. The water line is proposed to be insulated where five feet of cover cannot be achieved. A copy of the waiver request is attached.

29. Handicapped ramps are required at the terminal end of sidewalks. An ADA compliant handicapped ramp needs to be included at each cul-de-sac of Greystone Drive.

The ramps have been provided at the end of each cul-de-sac.

30. A street light on the northeast end of Greystone Drive will block access to Snow Easement #2. The street light needs to be relocated.

This street light has been relocated.

31. The gravel base depth is inconsistent between the "Typical Roadway Section" and the "Standard Bituminous Concrete Pavement" construction details. Both details specify a sufficient gravel depth (a twelve inch depth is required by Subdivision Rules & Regulations §5.2.1.6.a), however the information must be consistent. The MassDOT specification number for gravel (M1.03.0 Type B) must be included on the plans.

The details have been revised.

32. The erosion control barrier shown on Sheet 15 of 17 should be extended approximately 250 feet to the southeast along both sides of Millstone Drive to Pleasant Street.

The erosion barrier has been extended.

33. The "Precast Concrete Drain Manhole" construction detail on Sheet 16 of 17 specifies a LeBaron LK120 frame and cover. The LK 120 is a frame and grate with parallel bars. The detail must be revised to a LK110A frame and cover.

The detail has been revised.

34. The "Precast Concrete Catch Basin" and "Flat Top Catch Basin" construction details on Sheet 16 of 17 specify L202 hoods. The hoods must be "The Eliminator" or "The Snout", either has been accepted for use in Grafton.

The detail has been revised.

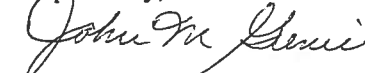
General Comments

35. We defer to the Planning Board if the cover sheet must also include suitable space for endorsement by the Planning Board and the requisite notes (e.g. certificate of no appeal, note about a recorded covenant, reference to a major residential special permit and "Deeds of Easements to be Recorded Herewith") that were presented on the other plan sheets.

No response necessary.

Should you have any questions or require any additional information please feel free to contact this office.

Respectfully,



John Grenier

J.M. Grenier Associates Inc.

cc: Casa Builders & Developers Corp.
Graves Engineering, Inc.